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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/581,622	06/05/2006	David Thomas Forrest	52993/326894	5397
23370 7590 03/04/2009 JOHN S. PRATT, ESQ KILPATRICK STOCKTON, LLP 1100 PEACHTREE STREET ATLANTA, GA 30309				
EXAMINER FERGUSON, LAWRENCE D				
ART UNIT		PAPER NUMBER		
1794				
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03/04/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/581,622

Applicant(s)

FORREST ET AL.

Examiner

LAWRENCE D. FERGUSON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment mailed November 5, 2008.

Claim 12 was amended and claims 15-30 were cancelled rendering claims 1-14 pending.

Claim Rejections – 35 USC § 102(b)

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-3, 6-8 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Goela et al. (U.S. 6,464,912).

Goela discloses a silicon carbide ring structure formed by chemical vapor deposition (column 2, lines 24-26 and column 6, lines 20-23, 62-65). Figures 5-7 show the structure is a flat, planar article having a planar direction and normal direction,

wherein the structure has a dimension in the planar direction that is larger than the dimension in the normal direction. Because Goela discloses a structure formed by chemical vapor deposition having a similar dimensions and made of the same material (silicon carbide) it is inherent for the structure to have grains substantially oriented in the planar and oriented in a substantially radial direction around the circumference of the ring, as in claims 1-3. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Mere recitation of a newly-discovered property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art. Additionally, anticipation by a prior art reference does not require that the reference recognize the inherent properties that may be possessed by the prior art reference. See *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 633 (Fed. Cir.) (1987).

Concerning claim 6, the thickness of the structure can be less than 0.1mm (column 2, lines 30-33) and a diameter of the ring is 9.75 inches (column 6, lines 20-25).

Concerning claim 7, Figures 5-7 shows a flat ring with a curved outer surface.

Concerning claim 8, Figures 2-3 show a flat range have symmetrical stresses around the circumference of the ring.

Concerning claim 13, because Goela discloses a structure formed by chemical vapor deposition having a similar dimensions and made of the same material (silicon carbide) it is inherent for the silicon carbide material to comprise grains having their axes of growth substantially parallel to each other and having rotational orientation that

is substantially random with respect to the axes of grain growth in the grains. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Mere recitation of a newly-discovered property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art. Additionally, anticipation by a prior art reference does not require that the reference recognize the inherent properties that may be possessed by the prior art reference. See *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 633 (Fed. Cir.) (1987).

Claim Rejections – 35 USC § 103(a)

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,464,912).

Goela is relied upon for instant claim 1, as above. The reference does not disclose the distance between the inner diameter and outer diameter. Goela discloses the ring structure has an inside and outside diameter, where the inside diameter is

between 100mm to 600mm (3.94 inch to 23.62 inch) (column 6, lines 20-26). Although the reference does not explicitly disclose the distance between the inside diameter and outer diameter is one inch, because Goela discloses the silicon carbide material made by a chemical vapor deposition is deposited until a desired thickness is reached (column 2, lines 24-30) it is reasonable to conclude that a distance between the inner diameter and outer diameter of one inch can be determined by depositing the material, until the desired distance between the inside and outer diameters is met, as in claims 4-5.

Claim Rejections – 35 USC § 103(a)

6. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,464,912) in view of Takeda et al (U.S. 6,515,297).

Goela is relied upon for instant claim 1, as above. Goela does not disclose a peak ratio of the structure. Takeda teaches a chemical vapor deposition silicon carbide structure having a peak intensity of 0.1 or more (column 2, lines 5-11), as in claims 11-12. Goela and Takeda are combinable because they are related to a similar technical field, which is a silicon carbide structure formed by chemical vapor deposition. It would have been obvious to one of ordinary skill in the art to have substituted the silicon carbide material of Takeda for the silicon carbide material of Goela as they are functional equivalents and Takeda teaches that this peak ratio is known and shown to

be functional. In claim 11, the phrase, "as measured by x-ray diffraction" introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Claim Rejections – 35 USC § 103(a)

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,464,912) in view of Ioku et al (U.S. 4,582,561).

Goela is relied upon for instant claim 1, as above. Goela does not disclose the structure further comprising a layer of silicon deposited on at least one surface thereof. Ioku teaches a silicon carbide layer formed on a silicon substrate formed by chemical vapor deposition method (column 3, line 67 through column 4, line 1) where Ioku shows the conventionality of further comprising a layer of silicon on at least one surface of silicon carbide. Goela and Ioku are combinable because they are related to a similar technical field, which is a silicon carbide structure formed by chemical vapor deposition. It would have been obvious to one of ordinary skill in the art to have substituted the silicon substrate of Ioku for the substrate of Goela to teach the conventionality of a

silicon carbide structure further comprising a layer of silicon deposited on at least one surface of the structure, as in claim 14.

Claim Rejections – 35 USC 102(e)

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-3, 6-7 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Goela et al. (U.S. 6,939,821).

Goela '821 discloses a silicon carbide ring structure formed by chemical vapor deposition (column 5, lines 40-43, 53-54; column 6, lines 26-27; column 9, lines 19-21, 48-52 and Figure 2A). Figures 2A-2B shows the structure is a flat, planar article having a planar direction and normal direction, wherein the structure has a dimension in the planar direction that is larger than the dimension in the normal direction. Because Goela '821 discloses a structure formed by chemical vapor deposition having a similar dimensions and made of the same material (silicon carbide) it is inherent for the structure to have grains substantially oriented in the planar direction and oriented in a substantially radial direction around the circumference of the ring, as in claims 1-3. The

claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Mere recitation of a newly-discovered property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art. Additionally, anticipation by a prior art reference does not require that the reference recognize the inherent properties that may be possessed by the prior art reference. See *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 633 (Fed. Cir.) (1987).

Concerning claim 6, the thickness of the structure may range from 0.1mm to 1.0mm (column 10, lines 22-24) and a diameter of the ring is 4mm (column 12, lines 35-36).

Concerning claim 7, Figure 2A shows a flat ring with a curved outer surface.

Concerning claim 13, because Goela '821 discloses a structure formed by chemical vapor deposition having a similar dimensions and made of the same material (silicon carbide) it is inherent for the silicon carbide material to comprise grains having their axes of growth substantially parallel to each other and having rotational orientation that is substantially random with respect to the axes of grain growth in the grains. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Mere recitation of a newly-discovered property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art. Additionally, anticipation by a prior art

reference does not require that the reference recognize the inherent properties that may be possessed by the prior art reference. See *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 633 (Fed. Cir.) (1987).

Claim Rejections – 35 USC § 103(a)

10. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,939,821) in view of Odaka et al (U.S. 6,699,411).

Goela '821 is relied upon for instant claim 1, as above. The reference does not explicitly disclose an opacifying dopant dispersed in the silicon carbide in an amount sufficient to provide an opacity greater than 10,000 times that of CVD-deposited silicon carbide. Although Goela '821 discloses the silicon carbide structure has a nitrogen content greater than 3×10^{19} atoms/cm³ (column 5, lines 8-10, 40-48, 62-64 and column 6, lines 25-29), it does not appear to teach the dopant is in an amount of 100ppm to about 5000ppm. Odaka teaches a silicon carbide structure comprising nitrogen in an amount of 150ppm or more (column 8, lines 56-67). Goela '821 and Odaka are combinable because they are related to a technical field, which is silicon carbide structures. It would have been obvious to one of ordinary skill in the art to substitute the nitrogen content of Odaka with the nitrogen content of Goela to improve the conductivity of the structure (column 8, lines 59-67) and because they are functional equivalents. Because the cited art teaches a CVD deposited silicon carbide comprising nitrogen in an amount of at least 150ppm, it is expected for the nitrogen to provide an opacity greater than 10,000 times that of CVD-deposited silicon carbide.

Claim Rejections – 35 USC § 103(a)

11. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,939,821) in view of Takeda et al (U.S. 6,515,297).

Goela '821 is relied upon for instant claim 1, as above. Goela '821 does not disclose a peak ratio of the structure. Takeda teaches a chemical vapor deposition silicon carbide structure having a peak intensity of 0.1 or more (column 2, lines 5-11), as in claims 11-12. Goela '821 and Takeda are combinable because they are related to a similar technical field, which is a silicon carbide structure formed by chemical vapor deposition. It would have been obvious to one of ordinary skill in the art to have substituted the silicon carbide material of Takeda for the silicon carbide material of Goela '821 as they are functional equivalents and Takeda teaches that this peak ratio is known and shown to be functional. In claim 11, the phrase, "as measured by x-ray diffraction" introduces a process limitation to the product claim. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966. Further, process limitations are given little patentable weight in product claims.

Claim Rejections – 35 USC § 103(a)

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,939,821) in view of Ioku et al (U.S. 4,582,561).

Goela '821 is relied upon for instant claim 1, as above. Goela '821 does not disclose the structure further comprising a layer of silicon deposited on at least one surface thereof. Ioku teaches a silicon carbide layer formed on a silicon substrate formed by chemical vapor deposition method (column 3, line 67 through column 4, line 1) where Ioku shows the conventionality of further comprising a layer of silicon on at least one surface of silicon carbide. Goela '821 and Ioku are combinable because they are related to a similar technical field, which is a silicon carbide structure formed by chemical vapor deposition. It would have been obvious to one of ordinary skill in the art to have substituted the silicon substrate of Ioku for the substrate of Goela '821 to teach the conventionality of a silicon carbide structure further comprising a layer of silicon deposited on at least one surface of the structure, as in claim 14.

Response to Arguments

13. The restriction requirement mailed May 23, 2008, is withdrawn due to Applicant cancelling claims 15-30.

The objection of the abstract is withdrawn.

The objection of the oath or declaration as being defective is withdrawn due to Arguments by applicant and the documentation of the Decision on Petition dated July 19, 2006 holding that the application was accepted without the signature of joint inventor David Forrest due to his refusal to sign.

The rejection made under 35 U.S.C. 112, second paragraph is withdrawn due to applicant's arguments and the amendment made to claim 12 to give it the proper antecedent basis.

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,464,912) in view of Ioku et al (U.S. 4,582,561) has been considered, but is unpersuasive. Applicant argues the Examiner admits that Goela does not explicitly disclose grains substantially oriented in the planar direction. Upon further consideration claim 1 has been rejected as being anticipated by Goela. Because Goela discloses a structure formed by chemical vapor deposition having a similar dimensions and made of the same material (silicon carbide) it is inherent for the structure to have grains substantially oriented in the planar and oriented in a substantially radial direction around the circumference of the ring. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In re Best, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Mere recitation of a newly-discovered property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art. Additionally, anticipation by a prior art reference does not require that the reference recognize the inherent properties that may be possessed by

the prior art reference. See *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 633 (Fed. Cir.) (1987). As a result of independent claim 1 being anticipated by Goela, Applicant's arguments regarding Goela and Ioku are rendered moot.

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,939,821) in view of Ioku et al (U.S. 4,582,561) further in view of Takeda et al (U.S. 6,515,297) has been considered, but is unpersuasive. Applicant has not directly argued against Goela in view of Ioku further in view of Takeda; therefore, the rejection is maintained for reasons of record.

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,939,821) in view of Ioku et al (U.S. 4,582,561) has been considered, but is unpersuasive. Applicant argues the Examiner admits that Goela '821 does not explicitly disclose grains substantially oriented in the planar direction. Upon further consideration claim 1 has been rejected as being anticipated by Goela '821. Because Goela '821 discloses a structure formed by chemical vapor deposition having a similar dimensions and made of the same material (silicon carbide) it is inherent for the structure to have grains substantially oriented in the planar and oriented in a substantially radial direction around the circumference of the ring. The claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. In *re Best*, 562 F.2d 1252, 1254, 195 USPQ 430, 433 (CCPA 1977). Mere recitation of a newly-discovered property, inherently possessed by things in prior art, does not cause claim drawn to those things to distinguish over prior art. Additionally, anticipation by a prior art

reference does not require that the reference recognize the inherent properties that may be possessed by the prior art reference. See *Verdegaal Bros., Inc. v. Union Oil Co.*, 814 F.2d 628, 633 (Fed. Cir.) (1987). As a result of independent claim 1 being anticipated by Goela '821, Applicant's arguments regarding Goela '821 and Ioku are rendered moot.

Applicant's arguments of the rejection made under 35 U.S.C. 103(a) as being unpatentable over Goela et al. (U.S. 6,939,821) in view of Ioku et al (U.S. 4,582,561) further in view of Takeda et al (U.S. 6,515,297) has been considered, but is unpersuasive. Applicant has not directly argued against Goela in view of Ioku further in view of Takeda; therefore, the rejection is maintained for reasons of record.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil, can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lawrence Ferguson/
Patent Examiner, Art Unit 1794

/JENNIFER MCNEIL/
Supervisory Patent Examiner, Art Unit 1794